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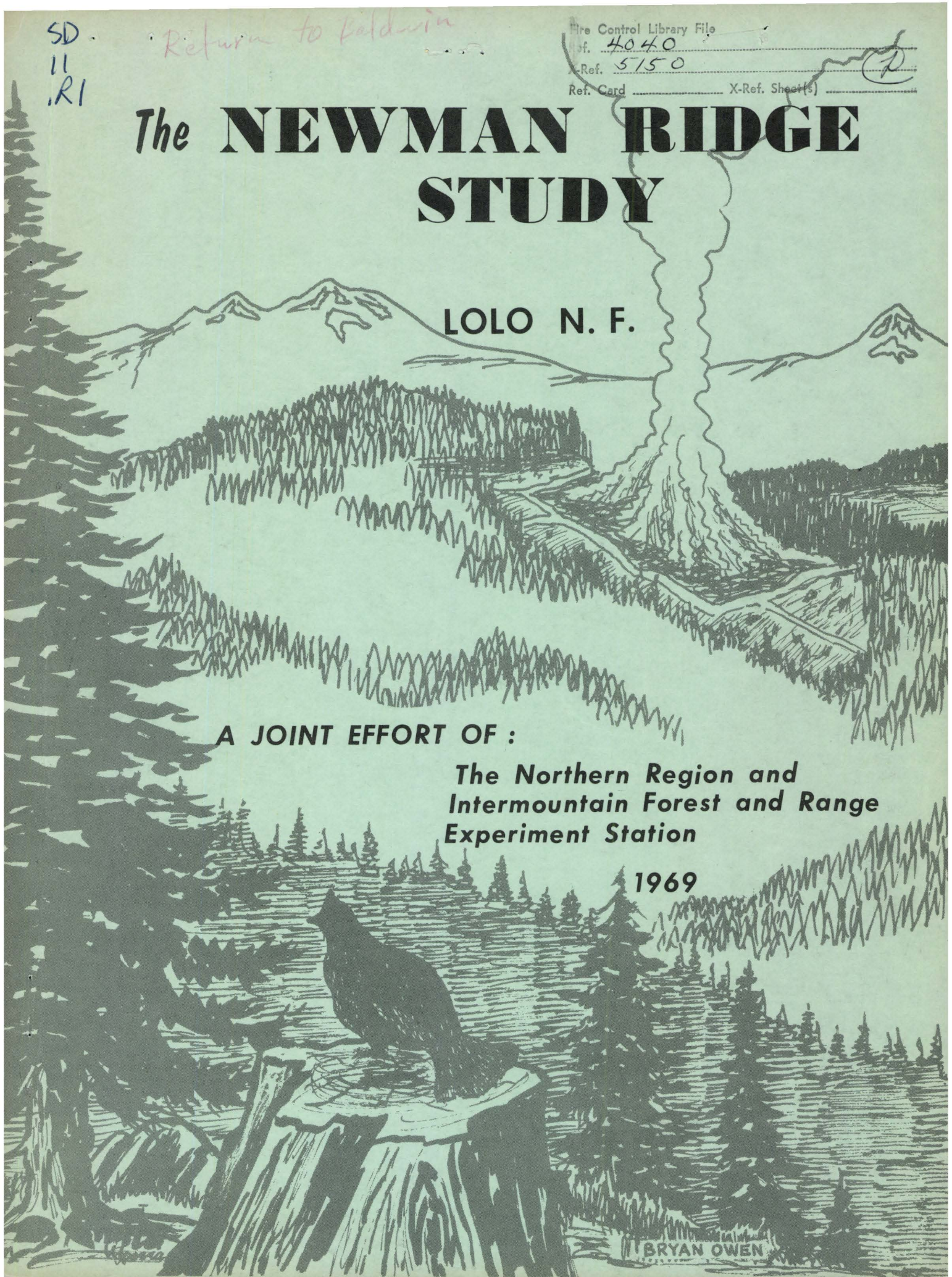
# The NEWMAN RIDGE STUDY

## LOLO N. F.




***A JOINT EFFORT OF :***

***The Northern Region and Intermountain Forest and Range Experiment Station***

***1969***

# MEETING NOTES
# NEWMAN RIDGE FIRE

A meeting was held at the Lolo SO to discuss I & E aspects of the fire and to consider future precautions needed to continue the study. Jack Large, Sam Evans, Art Brackebusch, Ken Young, Orville Daniels, Dick Baldwin, Jud Moore, Dave Owen, Bob Van Gieson and Dick Carter were present.

The fire escaped from block S-2 about 1400 Friday, July 25, 1969. There were 25 District men working on mopup in the area all day Friday. Six of the study blocks were previously burned and four of them still needed additional mopup work. The last four blocks burned were ignited on July 9, 14, 16 and 18.

Three of the study blocks were completely burned by the escaped fire. Two of these were instrumented so only one block was actually lost from the study. The fire had very little damaging effect on the objectives of the study. Some alteration may be needed concerning the regeneration study since some of the surrounding leave strips were burned. There are seven blocks remaining to be burned to complete the study. These blocks need to be burned under relatively dry conditions in August and September.

The opinion of the group was that we should not try to make excuses, but just get the facts out to the public and in-Service. We will profit by our mistakes and continue the study as safely as practical.

The critical problem lies with doing a more effective and efficient job of mopup when we resume burning. Following are some suggestions from the group that should be considered for future mopup operations:

1. Consideration must be given during sale preparation and layout to mopup problems. Special precautions need to be taken to prevent the burying of logs, debris or slash in road berms and dozer firelines.

2. Need to consider other methods or equipment for building firelines. Use hand constructed firelines to prevent piling of slash near edges. Use small dozers for line construction with a saw team out ahead so little disturbance or bunching of slash results along the fireline. Use brush blades on fireline building dozers and spread out any heavy concentrations of slash, using chain saws in front of the dozer.

3. Completely mopup a block after it is burned before igniting another block. This may require extensive use of a small dozer to actually dig out buried fuels and the use of cables to pull out any buried logs and stumps.

4. Use MEDC ground retardant sprayer to lay retardant along outside edge of the fireline when access is possible by the spray or hose lines from the spray unit.

5. Have a small mopup crew set up a camp at the burned unit to reduce transportation to and from the station and provide 24-hour surveillance until mopup is complete.

6. Insure that mopup crew is receiving the daily weather forecasts and request spot weather forecasts each day after burning a unit until mopup is complete.

7. Provide low level infrared detection scanner flights over burned blocks as needed to guide mopup action.

8. We may need to work the perimeter of the remaining seven blocks with machinery such as a small dozer equipped with a brush blade and winch to uncover piles of buried debris and spread out concentrations of heavy fuels before burning.

9. There may be need to assign a well qualified and experienced man to be responsible for the on-the-ground administration of the burning and mopup operations for the balance of the season. The District Ranger has many other responsibilities and cannot devote adequate supervision time to this important project.

RICHARD E. BALDWIN
Chief, Fire Planning and
Technical Service Branch

4040

July 30, 1969

SUPPLEMENT TO NEWMAN RIDGE STUDY HANDOUT

You will note from a review of the handout that we are in our third year of burning. We have 16 study blocks on Newman Ridge and as of last week, we had successfully burned 6 units. In order to fully evaluate the effects of varying fire intensities on the soil, vegetation, water and air resources, it is necessary to burn over the full range of hazard conditions. This requires that we burn with some degree of risk. There have been many management burns by all agencies in the last several decades. There has also been good research on the techniques of burning but these tests are the first really comprehensive studies of fire in relation to the total resources.

The Newman Ridge Study began as a timber sale purchased through competitive bidding by Clark Fork Logging Company in May of 1968. Logging was started on May 14, 1968 by John Oliver of Oliver and Oliver Company and proceeded at a rapid rate, sometimes reaching 130 M Bd ft. per day, until completion in June of 1969. A total of 11,000 M Bd ft. of timber, mostly Larch and Douglas-fir was harvested from the cutting blocks within the study area. Clark Fork paid the U. S. Government $327,000 for the timber.

As logging was completed, the various segments of the study were commenced and in June of 1969 the first blocks were burned experimentally. Burning of additional blocks continued into July, the order of burning being that listed below:

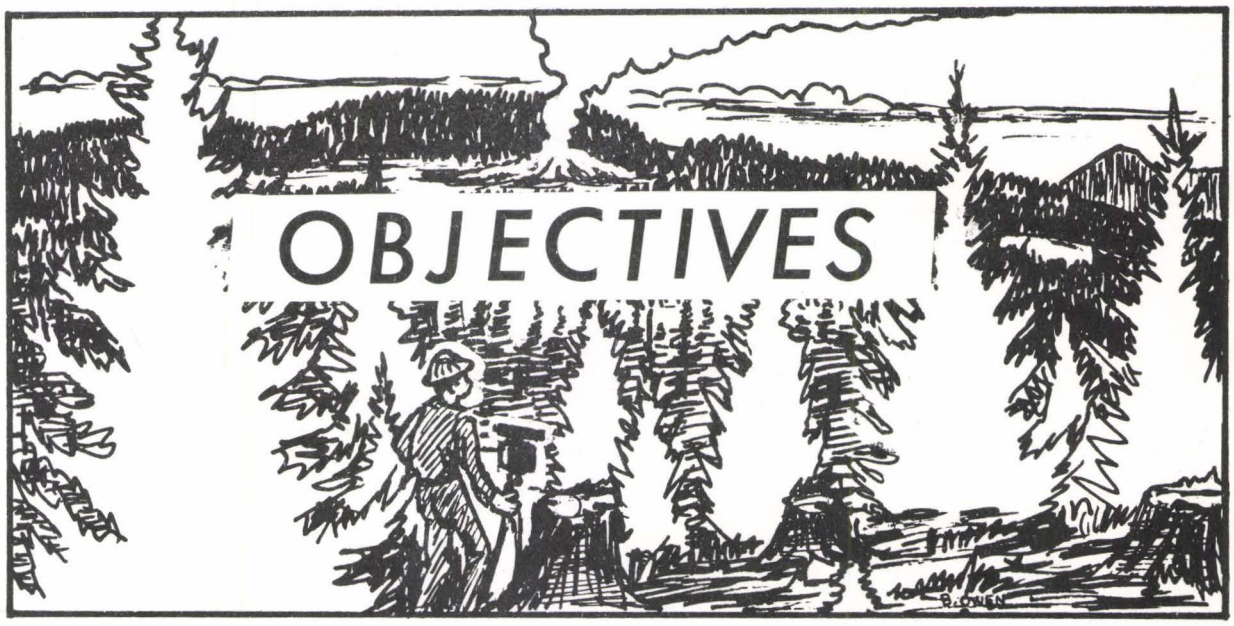
Block S-1 burned June 9
Block W-1 burned June 19
Block E-1 burned July 9
Block N-1 burned July 14
Block S-2 burned July 16
Block W-2 burned July 18

6 + 3 burned →

Following the completion of the first 6 burns, hazards got so high that it was necessary to delay any more ignitions. Crews were actively mopping up residual fires; but, unfortunately on July 25, 1969, strong winds in excess of 40 m.p.h. fanned up underground fires and carried embers into additional slash blocks. Three of the experimental blocks burned; one, E-4, was not yet prepared; two were fully instrumented and all of the data was collected just as if they had been burned deliberately.

Some trees were burned adjacent to the study blocks and these will be harvested by means of a salvage timber sale.

The study is producing much information of value for future forest management and will be continued to it's conclusion in September 1969.



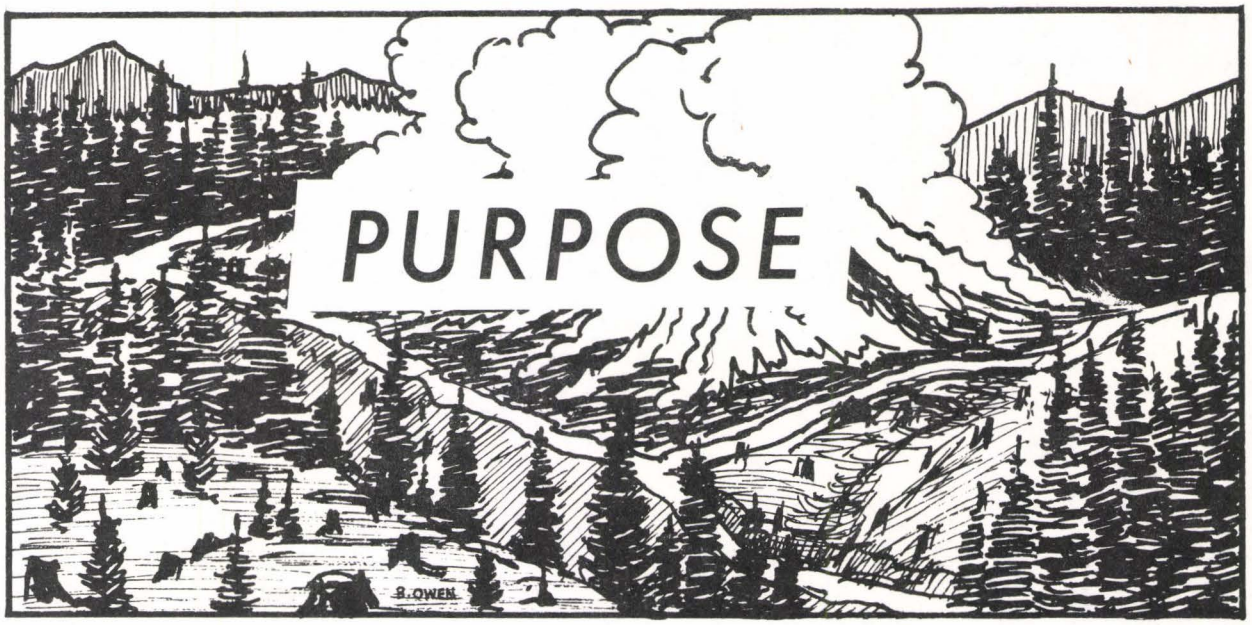

Learn how to schedule fires to achieve prescribed benefits for preparing sites for new forests, improve wildlife habitat, reduce fire hazard, and minimize insect and disease outbreak potentials.

Relate prescribed fire effects to fuel and weather conditions at the time of burn.

Compare elements of the National Fire-Danger Rating System with corresponding fire effects.

Determine the role of fire in soil stability, water runoff, and water quality.

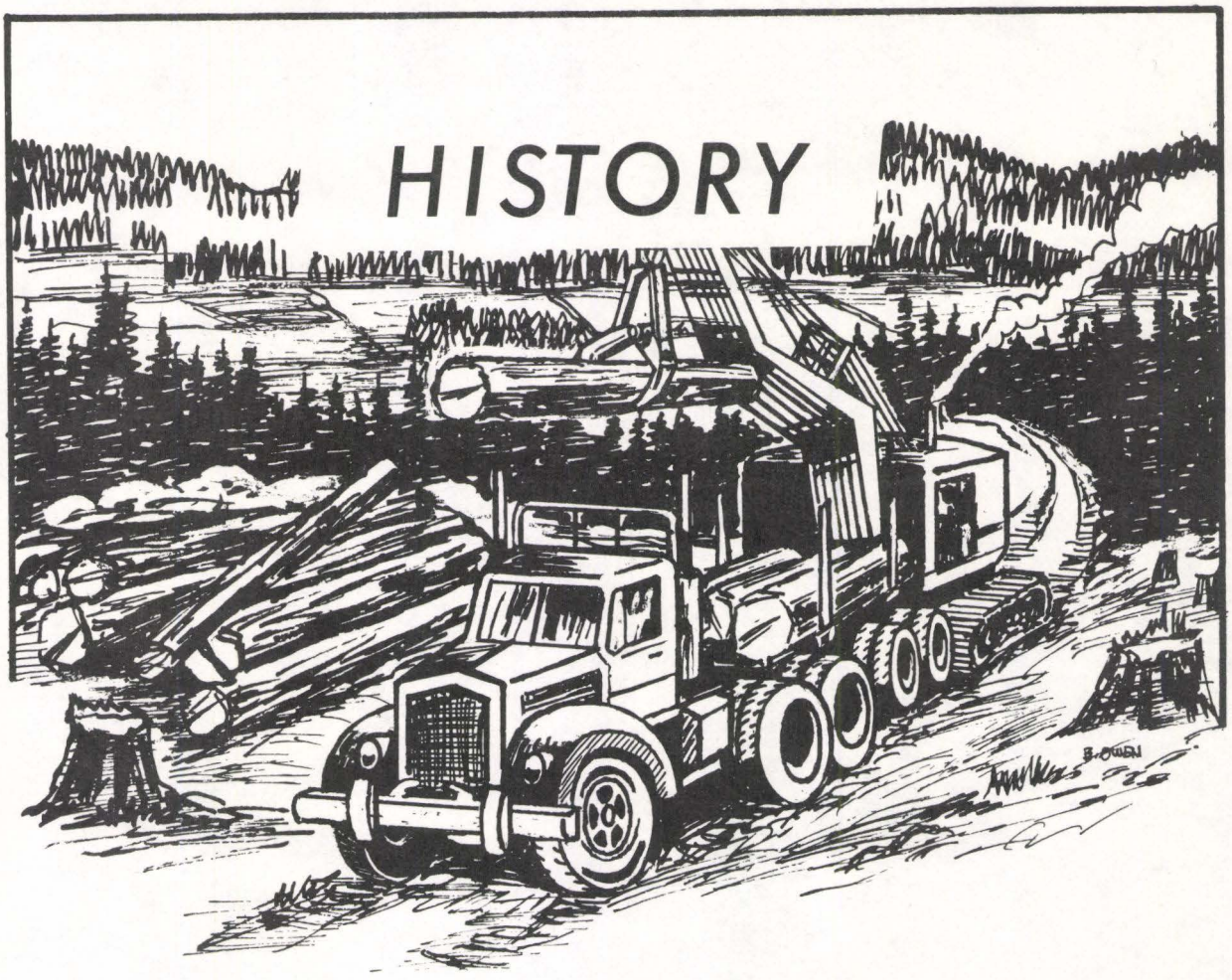
Describe the effects of prescribed burning on overall net air quality.




Fire has occurred as a natural influence on the composition of the forests in the Northern Region. Managers are already using fire widely for hazard reduction on timber harvest areas and for regeneration of new forest crops, as well as for creating a more favorable wildlife habitat.

Lack of precise knowledge has prevented optimum use of fire. Sometimes regeneration has failed or excess pollution has been created.

These studies should provide more scientific information for improved burning guidelines to achieve multiple use forest management objectives.




In early 1965, results of the Timber Growing Cost Study pointed to the need for a comprehensive study of the silvicultural aspects of fire use to prepare sites for tree regeneration. This prompted administrative and research personnel to initiate efforts to join together into a cooperative research study.

The first study area was established in Miller Creek on the Tally Lake District of the Flathead National Forest, in a larch Douglas-fir--Engelmann spruce timber type. On this area opportunities were fully utilized in studying effects of fire on soil, plant succession, and water and air quality. During 1967 and 1968, nearly fifty 10-acre plots were studied before, during, and after being burned. Completion of these burns ended the first phase of the study.

The second phase is now being conducted a few miles southwest of St. Regis, Montana, on Newman Ridge of the Superior Ranger District, Lolo National Forest. The 560-acre area has similar species and soils to Miller Creek, but the terrain is considerably steeper. Timber and brush volume is somewhat less and the precipitation pattern differs.

The timber sale was designed not only to accommodate research needs, but also to resemble a normal timber sale more closely than was possible at Miller Creek. The sale was cable logged from roads spaced 600 feet apart between May 1968 and July 1969.

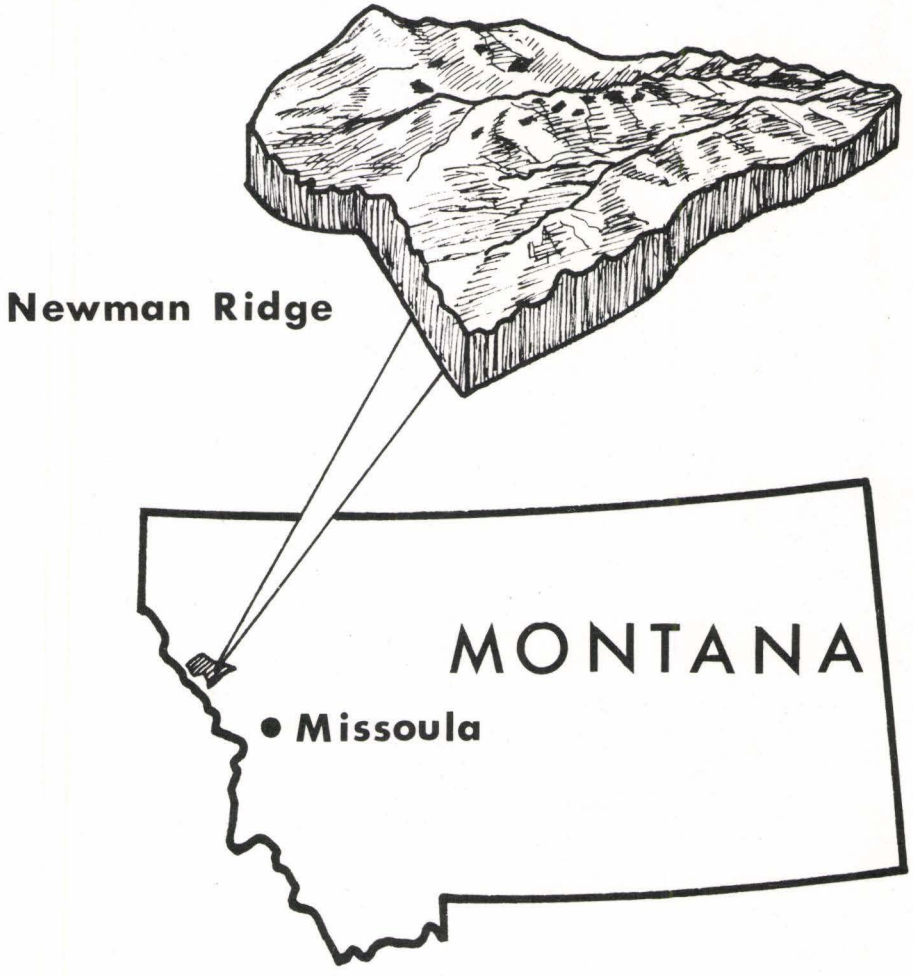
Groups participating in the study are:

National Forest Systems, Superior Ranger District, Lolo National Forest: sale layout, preparation and administration; plot ignition and control.

Fire Management Research: fuel inventory and fuel moisture before and after burning; rate of spread, intensity, radiation, reduction of duff during burning; atmospheric soundings, fire weather.

Timber Management Research: soil temperature, root survival, seedling establishment and survival, planting success, seed dissemination.

Watershed Management Research: soil erosion and runoff, water quality, soil physical and chemical characteristics--before and after burning.

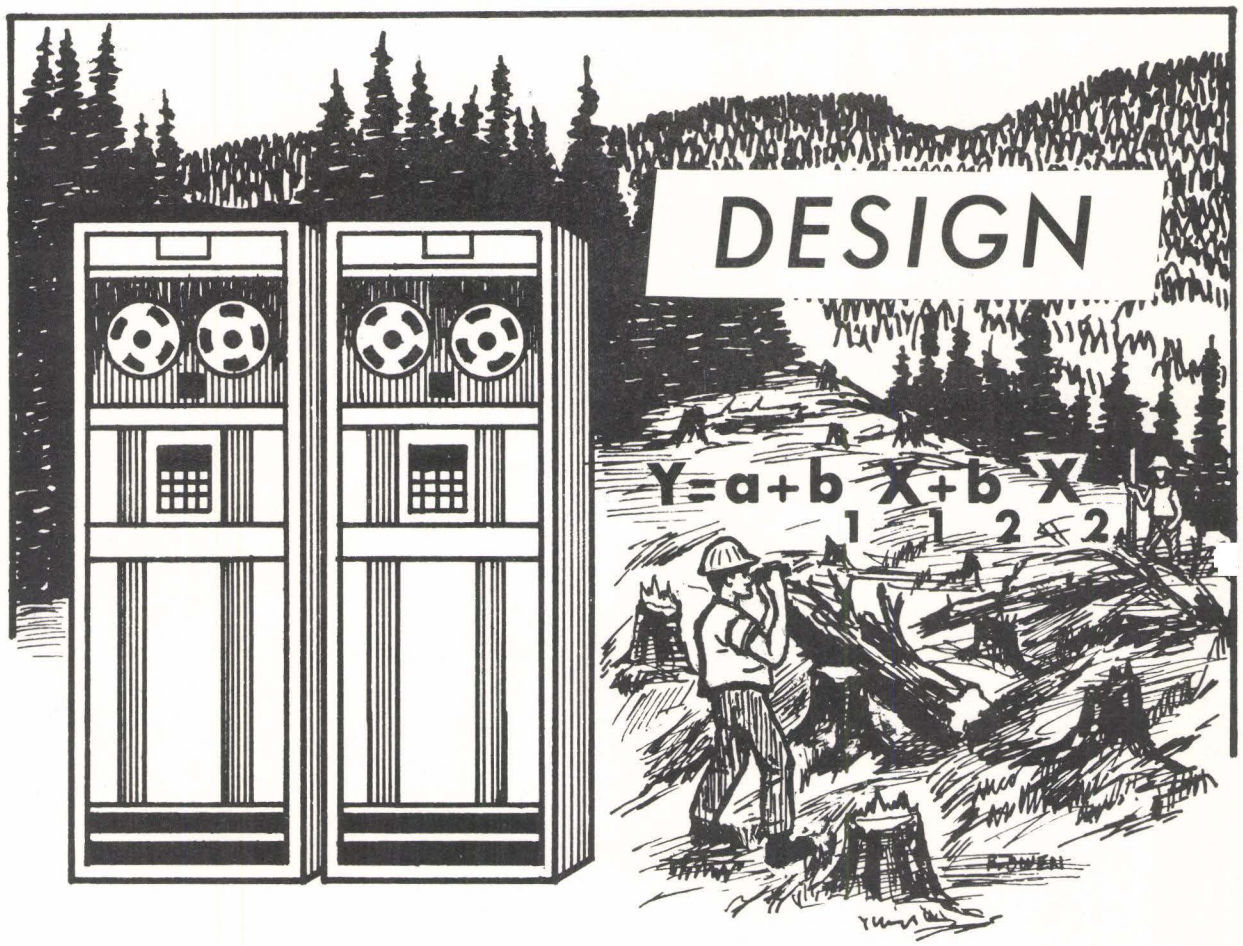



Wildlife Habitat Research: effect of cutting and burning on game browse production.

Small Mammal Ecology Research: changes in small mammal populations and species; with Timber Management Research, effect of small mammals on seed supply.

Air Pollution Research Division, Washington State University: smoke production, column height, dispersion, gaseous and particulate components; laboratory and theoretical modeling.

Equipment Development Center, Missoula: testing of firefighting equipment.




The sale consists of 16 clearcut units ranging in size from 21 to 56 acres. Four units face each of the four cardinal directions. Each of the units contains three $2\frac{1}{2}$-acre study plots.

All cruise, stand examination, sale administration, burning, and control work is conducted by the Superior Ranger District personnel.

Before the burn, a complete fuel inventory by size class is conducted. Fuel moisture, weather, and other needed data are collected at the time of burning. In the same time period, data are also collected for reforestation, watershed, game forage, and air quality research use.

Burning is accomplished from early spring until late fall, the timing depending primarily on obtaining a good array of fuel moisture conditions and atmsopheric situations. All units are scheduled for burning during the 1969 field season.

A postburn inventory determines how much fuel is consumed and the amount of duff removed. Also at this time, intensive soil and water quality tests are begun.

Data collection will continue for several years in all the research phases except fire. They will be conducted until no more significant changes are observed.